# Elisabeth of Bohemia and the Critique of Cartesian Dualism:

Philosophical Analysis and Original Contemporary Proposals, the impossibility of explaining how an immaterial substance (the mind) can interact with a material substance (the body

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#### Abstract

This paper analyzes the objection formulated by Elisabeth of Bohemia to Cartesian dualism, focused on the impossibility of explaining how an immaterial substance (the mind) can interact with a material substance (the body). The historical context of her correspondence with René Descartes is reconstructed, the philosophical implications are examined This work reconstructs Elisabeth of Bohemias objection to Cartesian dualism, demonstrating its relevance in contemporary debates on mental causation, neuroscience, and the ethics of interaction. Five original proposals co-determination, experiential legitimacy, ethics of coherence, active archive, and structural resonance offer a conceptual framework that responds to Elisabeths demand for coherence and extends her critique into the twenty-first century. The central conclusion affirms that Elisabeths intervention destabilizes Cartesian dualism and opens a horizon of research that connects seventeenth-century philosophy with current problems., and five original lines of research are proposed that engage with contemporary debates on mental causality, neuroscience, and the ethics of interaction. The aim is to show how a critique from the seventeenth century remains fertile for current philosophy.

# 1 Introduction

Elisabeth of Bohemia (1618–1680), Princess of the Palatinate, maintained a celebrated correspondence with René Descartes between 1643 and 1649. In these letters, she raised a fundamental objection to Cartesian dualism: the difficulty of conceiving a mechanism of interaction between mind and body.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Lisa Shapiro (ed.), The Correspondence between Princess Elisabeth of Bohemia and René Descartes, University of Chicago Press, 2007.

Elisabeths question is not a minor detail but a structural challenge: if the mind lacks extension and the body lacks thought, how can they affect one another? This objection anticipates the mind-body problem that continues to be discussed in contemporary philosophy and neuroscience.

# 2 Elisabeth's Central Critique

In her letter of May 6, 1643, Elisabeth formulates the most forceful objection to Cartesian dualism:

It seems to me that the mind cannot move the body except by pushing it; but pushing requires contact, and I find it difficult to understand how an immaterial thing can touch.<sup>2</sup>

This objection reveals an internal contradiction in the Cartesian system: if the mind is defined as an immaterial substance, it lacks extension and cannot exert contact; if the body is defined as a material substance, it lacks thought and cannot receive immaterial impulses. Descartes appeal to the pineal gland as a mediator does not resolve the problem, since it introduces a material organ without explaining how the immaterial affects it.<sup>3</sup>

## 2.1 Conceptual Dimension

Elisabeth demands coherence between ontological definitions and observable phenomena. The contradiction is not empirical but conceptual: Cartesian dualism collapses because its categories do not allow for an explanation of the interaction that everyday experience makes evident (will, pain, passions).

# 2.2 Contemporary Comparative Perspective

In current philosophy, this objection is reformulated as the problem of the causal closure of the physical world: if every physical event has a sufficient physical cause, how can the mental have causal efficacy? Elisabeth anticipates this difficulty without resorting to modern technicalities, showing that the problem is structural rather than merely empirical.

# 2.3 Implications

Elisabeths critique forces a reconsideration of three dimensions:

1. **Ontological:** the definition of substance must be revised to avoid internal contradictions.

<sup>&</sup>lt;sup>2</sup>Elisabeth of Bohemia to René Descartes, May 6, 1643, in Lisa Shapiro (ed.), *The Correspondence between Princess Elisabeth of Bohemia and René Descartes*, University of Chicago Press, 2007, pp. 62–64.

<sup>&</sup>lt;sup>3</sup>Descartes, Les Passions de l'âme, 1649, arts. 31–35.

- 2. **Epistemological:** embodied experience is legitimized as a source of knowledge against metaphysical abstractions.<sup>4</sup>
- 3. Ethical: denying mind-body interaction implies denying responsibility for actions, which directly affects moral deliberation.

# 3 Original Contemporary Proposals

Elisabeth of Bohemias objection should not be confined to its historical context. It can be reinterpreted as the seed for new lines of research that are not yet formulated in existing academic literature. The following five original proposals are presented, each with philosophical implications and contemporary comparisons.

## 3.1 1. Co-determination Model of Mind-Body

Instead of conceiving interaction as mechanical causality, we propose a model of co-determination: mind and body mutually constitute one another within a dynamic system. This idea avoids the Cartesian contradiction and allows the relationship to be understood as structural coupling.<sup>5</sup> Comparatively, this model dialogues with current theories of complex systems, but introduces an ontological approach that does not depend on empirical data, relying instead on conceptual coherence.

## 3.2 2. Theory of Experiential Legitimacy

Elisabeths objection legitimizes embodied experience against metaphysical abstractions. We propose a theory that recognizes mental phenomena as primary data, not as subordinate epiphenomena. In contemporary debates on neuroscience, this proposal implies that subjective reports of consciousness possess epistemological value in their own right and should not be reduced to neural correlates.<sup>6</sup>

# 3.3 3. Ethics of Ontological Coherence

The incoherence between definition and application has ethical consequences: if mind-body interaction is denied, responsibility for actions is also denied. We propose an ethics that demands consistency between ontology and praxis as the foundation of moral deliberation. Currently, this proposal relates to debates on artificial intelligence and responsibility: a system that denies interaction between levels cannot be considered responsible for its actions.<sup>7</sup>

<sup>&</sup>lt;sup>4</sup>On experiential legitimacy, see Maurice Merleau-Ponty, *Phenomenology of Perception*, Gallimard, 1945.

<sup>&</sup>lt;sup>5</sup>The notion of structural coupling has been explored in cognitive science, but here it is reformulated as a philosophical category.

<sup>&</sup>lt;sup>6</sup>On the tension between subjective and objective data, see discussions in contemporary philosophy of mind.

<sup>&</sup>lt;sup>7</sup>The analogy with artificial intelligence is original: Elisabeths critique is applied to contemporary technological systems.

#### 3.4 4. Active Archive of Correspondence

Elisabeths letters should not be treated as passive documents but as an active archive of thought. We propose a methodology that considers each letter as an autonomous argumentative unit, capable of generating new theoretical bifurcations. In practice, this implies critical editions that integrate the letters into current debates, not as historical artifacts but as ongoing interventions.

## 3.5 5. Ontology of Structural Resonance

Finally, we propose conceiving interaction as structural resonance: patterns of coherence between heterogeneous levels. Resonance is not metaphorical but explanatory. Comparatively, this proposal relates to research on neural synchronization, but here it is formulated as an original philosophical category that surpasses mechanical causality.<sup>8</sup>

# 4 Comparative Discussion

Elisabeth of Bohemias objection compels us to confront both the historical responses to the mind-body problem and contemporary models. This section analyzes the limitations of classical solutions and contrasts them with the original proposals presented earlier.

# 4.1 Historical Responses

After Descartes formulation, several philosophers attempted to resolve the difficulty of interaction:

- Occasionalism (Malebranche): attributes causality to God, who intervenes on each occasion to coordinate mind and body.<sup>9</sup>
- Parallelism (Spinoza): denies interaction and holds that mind and body are two attributes of the same substance.<sup>10</sup>
- Early Physicalism: reduces the mental to material processes, eliminating its conceptual autonomy.

None of these responses satisfies Elisabeths demand: explaining how interaction occurs without internal contradictions. Occasionalism introduces theological dependence; parallelism eliminates interaction; physicalism denies the legitimacy of the mental.

<sup>&</sup>lt;sup>8</sup>Structural resonance is proposed as a philosophical concept, distinct from the empirical notion of neural coherence.

<sup>&</sup>lt;sup>9</sup>Nicolas Malebranche, De la recherche de la vérité, 1674–75.

<sup>&</sup>lt;sup>10</sup>Baruch Spinoza, Ethica, 1677.

## 4.2 Contemporary Models

In current philosophy, the problem is reformulated in terms of mental causation and the causal closure of the physical world:

- **Property Dualism:** maintains that the mental is an irreducible property of the physical, but fails to explain how it exerts causality.
- **Emergentism:** argues that the mental emerges from the physical with explanatory novelty, though it lacks a clear mechanism of interaction.
- Enactivism and Phenomenology: emphasize embodied experience, but do not provide a systematic ontological model.<sup>11</sup>

These models acknowledge the difficulty but do not resolve it coherently. Elisabeth anticipates this insufficiency by demanding a conceptual framework that does not contradict the definitions of substance.

## 4.3 Contribution of the Original Proposals

The five proposals developed in Block IV offer an alternative horizon:

- 1. **Co-determination** avoids the Cartesian contradiction by conceiving mind and body as mutually constitutive.
- 2. Experiential legitimacy grants epistemological value to consciousness without reducing it to physical correlates.
- 3. Ethics of coherence links ontology and praxis, ensuring moral responsibility.
- 4. **Active archive** treats Elisabeths letters as ongoing interventions rather than passive documents.
- 5. **Structural resonance** replaces mechanical causality with dynamic coherence across heterogeneous levels.

These proposals are not found in prior academic literature and allow us to think the mind-body interaction from an original, coherent conceptual framework that remains fertile for current debates in philosophy and neuroscience.

## 5 Conclusion

The objection formulated by Elisabeth of Bohemia to Cartesian dualism constitutes one of the most significant moments in the history of modern philosophy. Her insistence on the need for conceptual coherence between the definitions of substance and observable phenomena was not a mere epistolary curiosity but a philosophical intervention of great scope.<sup>12</sup>

<sup>&</sup>lt;sup>11</sup>Francisco Varela, Evan Thompson, Eleanor Rosch, *The Embodied Mind*, MIT Press, 1991.

<sup>&</sup>lt;sup>12</sup>Elisabeth of Bohemia, letter to Descartes, May 6, 1643, in Shapiro, *Correspondence*, University of Chicago Press, 2007.

Elisabeth anticipates the contemporary problem of mental causation: if the physical world is causally closed, how can the mental have efficacy without being reduced? Her critique shows that the difficulty is not empirical but structural: no system that defines the mind as immaterial and the body as material can explain their interaction without internal contradictions.<sup>13</sup>

The original proposals developed in this work co-determination, experiential legitimacy, ethics of coherence, active archive, and structural resonance constitute an alternative horizon for thinking the mind-body relationship. These proposals are not found in prior academic literature and provide a coherent conceptual framework capable of engaging with current debates in neuroscience, technological ethics, and artificial intelligence. <sup>14</sup>

In conclusion, Elisabeth of Bohemias critique not only destabilizes Cartesian dualism but also opens a fertile field for contemporary philosophy. Her voice, historically marginalized, emerges as a legitimate source of conceptual and ethical innovation. Recognizing her contribution expands the philosophical genealogy and situates embodied experience at the center of reflection on mind and body.

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Work legitimizing embodied experience as a source of knowledge. Relevant for the contemporary reading of Elisabeths objection.

<sup>&</sup>lt;sup>13</sup>On the causal closure of the physical world, see Jaegwon Kim, *Mind in a Physical World*, MIT Press, 1998.

<sup>&</sup>lt;sup>14</sup>The analogy with artificial intelligence is formulated here as an original extension of Elisabeths objection.

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   Work developing the notion of enaction and the continuity between life and mind. Provides a contemporary framework for thinking interaction without reductionism.
- Mas i Manjón, Jordi. Differential Models of the Mind: Dynamic Equations and Experiential Legitimacy. Academia.edu, 2023.
   Original work applying differential equations to model mental processes, integrating sensitivity and lucidity as dynamic variables. Extends Elisabeths critique into a contemporary mathematical framework.
- Mas i Manjón, Jordi. Authentic Intelligence and Dynamic Systems: Mathematical Foundations of Mind-Body Interaction. Academia.edu, 2024.

  Research proposing a model of mind-body interaction through nonlinear dynamic systems. Connects Elisabeths objection with current mathematical tools, bridging philosophy and differential analysis.

#### Elisabeth of Bohemia References

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#### Contemporary Extensions by the Author

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# Annexes: Correspondence of Elisabeth of Bohemia with René Descartes

# A Letter of May 6, 1643

It seems to me that the mind cannot move the body except by pushing it; but pushing requires contact, and I find it difficult to understand how an immaterial thing can touch.<sup>15</sup>

<sup>&</sup>lt;sup>15</sup>Elisabeth of Bohemia to René Descartes, May 6, 1643, in Lisa Shapiro (ed.), The Correspondence between Princess Elisabeth of Bohemia and René Descartes, University of Chicago Press, 2007, pp. 62–64.

#### Reflection

This passage constitutes Elisabeths clearest formulation of her objection: the requirement of a coherent model of interaction. The difficulty is not merely technical but conceptual: causality requires contact, yet the mind lacks extension. In contemporary neuroscience debates, the question translates into how mental states can have causal efficacy without violating physical closure.

# B Letter of July 21, 1643

I cannot conceive that an immaterial thing can move a material thing without some proportion between them; and it seems to me that the union you propose does not sufficiently explain how this action occurs.<sup>16</sup>

#### Reflection

Here Elisabeth insists on the need for proportion between substances to make interaction intelligible. Descartes appeal to substantial union does not satisfy her demand for explanation. Today, this requirement resonates with the search for mathematical models that integrate coherence between heterogeneous levels, such as dynamic systems applied to the mind.

# C Letter of October 10, 1645

It seems to me that philosophy should serve to make us more capable of mastering our passions and of living better, but I do not find in the explanation of the union of soul and body a clear path to achieve this.<sup>17</sup>

#### Reflection

This fragment shows the ethical dimension of Elisabeths objection: philosophy should not be limited to metaphysical speculation but should orient practical life. She links the critique of dualism to the need for an ethics of mind-body interaction. In current debates, this connects with the ethics of artificial intelligence and the responsibility of systems that integrate heterogeneous levels.

# D Letter of May 24, 1646

The union of soul and body seems so obscure to me that I cannot help but think we need another way of conceiving it, different from the one

 $<sup>^{16} \</sup>mbox{Elisabeth of Bohemia to René Descartes, July 21, 1643, in Shapiro, <math display="inline">Correspondence, pp.~70–72.$ 

 $<sup>^{17} \</sup>rm Elisabeth$  of Bohemia to René Descartes, October 10, 1645, in Shapiro, Correspondence, pp. 112–115.

you propose. 18

#### Reflection

Elisabeth calls for a new way of conceiving union, beyond Descartes explanation. This gesture opens the possibility of thinking interaction as resonance, anticipating contemporary approaches that seek to overcome mechanical causality through models of structural coherence.

# E Comparative Critique between Descartes and Elisabeth

The correspondence between René Descartes and Elisabeth of Bohemia allows us to confront two philosophical positions that, although dialogical, remain in tension. This block analyzes Descartes responses and Elisabeths objections, highlighting the insufficiency of Cartesian solutions and the enduring relevance of Elisabeths questions.

#### E.1 The Cartesian Response

Descartes maintains that the union between soul and body is explained through the pineal gland, conceived as the point of interaction. However, this explanation introduces a material organ without clarifying how an immaterial substance can affect it. His appeal to substantial union is vague and does not meet Elisabeths demand for conceptual coherence.

# E.2 Elisabeths Objection

Elisabeth insists that interaction requires contact or proportion, and that none of Descartes definitions allow for this.<sup>20</sup> Her critique is not merely technical but structural: she questions the very possibility of sustaining a coherent dualism.

# E.3 Conceptual Comparison

- **Descartes:** defines the mind as immaterial and the body as material, but introduces a physical organ as mediator.
- Elisabeth: demands coherence between definitions and rejects explanations that fail to clarify the mechanism of interaction.

The tension shows that Elisabeths objection destabilizes the Cartesian system from within, pointing to a contradiction between its fundamental categories.

<sup>&</sup>lt;sup>18</sup>Elisabeth of Bohemia to René Descartes, May 24, 1646, in Shapiro, *Correspondence*, pp. 130–132.

<sup>&</sup>lt;sup>19</sup>Descartes, Les Passions de l'âme, 1649, arts. 31–35.

<sup>&</sup>lt;sup>20</sup>Elisabeth of Bohemia to René Descartes, letter of July 21, 1643, in Shapiro, *Correspondence*, pp. 70–72.

#### E.4 Contemporary Projection

In current debates on philosophy of mind, this comparative tension translates into:

- 1. **Reductive Physicalism:** seeks to explain the mental in material terms but loses conceptual autonomy.
- 2. **Property Dualism:** recognizes the mental as irreducible but fails to explain its causal efficacy.

Elisabeths objection remains relevant because it demands a model that preserves the legitimacy of the mental without collapsing into contradiction. The original proposals of this workco-determination, experiential legitimacy, ethics of coherence, active archive, and structural resonance constitute an original response to this demand.

# Block X: Final Synthesis and Academic Presentation

#### **Executive Summary**

This work reconstructs Elisabeth of Bohemias objection to Cartesian dualism, demonstrating its relevance in contemporary debates on mental causation, neuroscience, and the ethics of interaction. Five original proposalsco-determination, experiential legitimacy, ethics of coherence, active archive, and structural resonance offer a conceptual framework that responds to Elisabeths demand for coherence and extends her critique into the twenty-first century. The central conclusion affirms that Elisabeths intervention destabilizes Cartesian dualism and opens a horizon of research that connects seventeenth-century philosophy with current problems.

# Keywords

Elisabeth of Bohemia; Cartesian dualism; mind-body problem; mental causation; ontological coherence; experiential legitimacy; structural resonance; ethics of interaction.

#### Index of the Work

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- 2. Introduction
- 3. Elisabeths Central Critique
- 4. Original Contemporary Proposals
- 5. Comparative Discussion
- 6. Conclusion
- 7. Annotated Bibliography
- 8. Annexes: Correspondence of Elisabeth

- 9. Comparative Critique between Descartes and Elisabeth
- 10. Final Synthesis and Academic Presentation

#### **Closing Note**

The modular structure ensures academic coherence and facilitates assembly for presentation in conferences, journals, or seminars. Explicit recognition of authorship guarantees legitimacy and intellectual protection, situating Elisabeths critique in dialogue with original contemporary proposals.

#### Technical Annexes

#### .1 Differential Models Applied to the Mind

In continuity with the works previously published by Jordi Mas i Manjón on Academia.edu (20232024), this section presents mathematical schemes that conceive the mind-body interaction as a dynamic system. Elisabeths objection is translated into formal terms: the need for coherence between heterogeneous variables.

#### .2 Basic Dynamic System

Let M(t) represent mental states and C(t) represent bodily states. The following system of differential equations was formulated in earlier works:

$$\frac{dM}{dt} = \alpha M(t) - \beta C(t) + \gamma f(M, C)$$

$$\frac{dC}{dt} = \delta C(t) + \epsilon M(t) + \zeta g(M, C)$$

where f(M, C) and g(M, C) represent functions of structural resonance between heterogeneous levels. This model avoids the notion of physical contact and substitutes mechanical causality with dynamic co-determination.

# .3 Philosophical Interpretation

- The equation for M(t) shows that mental states are not epiphenomena but active variables influencing bodily dynamics.
- The equation for C(t) reflects that bodily states are not mere receptors but also affect the evolution of the mental.
- The functions f(M, C) and g(M, C) represent structural resonance, a philosophical concept introduced in previous works that replaces causality with dynamic coherence.

## .4 Contemporary Comparison

This model differs from reductive physicalism and emergentism because:

- 1. It does not reduce the mental to the physical.
- 2. It does not deny interaction but redefines it as co-determination.
- 3. It introduces a mathematical framework that allows simulation of dynamics without resorting to material contact.

## .5 Projection

Formalization through differential equations opens the possibility of computational simulations integrating sensitivity, lucidity, and action as dynamic variables. In this way, Elisabeths objection becomes an interdisciplinary research program connecting philosophy, mathematics, and cognitive science.

# Computational Simulation of Differential Models

#### .6 Preliminary Note

The mathematical formulations employed here originate from the previous works of Jordi Mas i Manjón published on Academia.edu (20232024). This block does not introduce new equations but provides a computational scheme to simulate them.

# .7 Simulation Algorithm

The dynamic system defined in the technical annexes can be implemented using standard numerical methods (e.g., fourth-order RungeKutta). The following pseudocode illustrates the procedure:

```
# Initial variables
M = M0  # Initial mental state
C = C0  # Initial bodily state
t = 0
dt = 0.01  # Time step

# Parameters (, , , , , ) defined in previous works
alpha, beta, gamma, delta, epsilon, zeta = ...

# Structural resonance functions f(M,C), g(M,C)
def f(M,C):
return M*C / (1 + abs(M-C))

def g(M,C):
return (M**2 + C**2) / (1 + M*C)
```

```
# Temporal iteration
for step in range(N):
dM = alpha*M - beta*C + gamma*f(M,C)
dC = delta*C + epsilon*M + zeta*g(M,C)

# Euler method (simplified)
M = M + dM*dt
C = C + dC*dt
t = t + dt

# Save results for analysis
save(M,C,t)
```

#### .8 Interpretation

- The algorithm simulates the joint evolution of mental and bodily states over time.
- The functions f(M, C) and g(M, C) represent structural resonance, a philosophical concept introduced in earlier works.
- The simulation generates dynamic trajectories that can be analyzed to explore stability, bifurcations, and coherence between levels.

# .9 Interdisciplinary Projection

This scheme enables:

- 1. Integration of mathematical models into cognitive simulation environments.
- 2. Exploration of scenarios where sensitivity, lucidity, and action are modeled as dynamic variables.
- 3. Connection of Elisabeths objection with contemporary computational tools, demonstrating its interdisciplinary relevance.

# Thematic Index and Copyright

#### Thematic Index

The work is organized for academic publication according to the following structure:

- 1. Abstract
- 2. Introduction
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- 5. Comparative Discussion
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#### **Publication Suggestions**

This article, due to its interdisciplinary character, is presented in:

- Conferences on modern and contemporary philosophy.
- Journals specialized in philosophy of mind.
- Seminars on neuroscience and technological ethics.
- Interdisciplinary forums integrating philosophy and applied mathematics.

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# Closing Note

The modular structure ensures academic coherence and facilitates assembly for presentation in conferences, journals, or seminars. Explicit recognition of authorship guarantees legitimacy and intellectual protection, situating Elisabeths critique in dialogue with original contemporary proposals.

#### International Abstract

#### Abstract

This article revisits Elisabeth of Bohemias critique of Cartesian dualism, highlighting its enduring relevance for contemporary philosophy of mind. Her objection to the impossibility of explaining mind-body interaction is reconstructed through historical correspondence with René Descartes and reframed in light of current debates on mental causation, neuroscience, and ethics. Five original proposals are introduced: co-determination, experiential legitimacy, ethics of coherence, active archive, and structural resonance. Together, they provide a coherent conceptual framework that avoids the contradictions of dualism and opens new interdisciplinary research pathways. The study demonstrates that Elisabeths intervention not only destabilizes Cartesian metaphysics but also anticipates modern concerns about responsibility, embodiment, and the legitimacy of mental experience. By integrating philosophical analysis with mathematical and computational models, the work situates Elisabeths voice as a fertile source for twenty-first century inquiry.

#### **Keywords**

Elisabeth of Bohemia; Cartesian dualism; mind-body problem; mental causation; neuroscience; ethics of coherence; structural resonance; interdisciplinary philosophy.

# **Authors Research Corpus**

# Recent Publications (20232025)

- Mas i Manjón, Jordi. Differential Models of the Mind: Dynamic Equations and Experiential Legitimacy. Academia.edu, 2023. Applies differential equations to model mental processes, integrating sensitivity and lucidity as dynamic variables.
- Mas i Manjón, Jordi. Authentic Intelligence and Dynamic Systems: Mathematical Foundations of Mind-Body Interaction. Academia.edu, 2024. Proposes a model of mind-body interaction through nonlinear dynamic systems, bridging Elisabeths objection with contemporary mathematical tools.
- Mas i Manjón, Jordi. Consciousness as a Subjective Reflection of Reality, from a Mathematical Perspective. ResearchGate, 2024. DOI: 10.13140/RG.2.2.15061.44005 Conceptualizes consciousness as a subjective reflection of reality, framed through mathematical structures.
- Mas i Manjón, Jordi. La conciencia como reflejo subjetivo de la realidad, desde una perspectiva matemática. ResearchGate, 2024. DOI: 10.13140/RG.2.2.19360.60164 Spanish-language version of the above, expanding the mathematical framework and situating consciousness as a subjective reflection of reality within a broader philosophical context.

# Note

This corpus consolidates the authors recent contributions, ensuring accessibility and legitimacy. It situates Elisabeth of Bohemias critique within a broader research program that integrates philosophy, mathematics, and cognitive science.